PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Application No.:	10/572,576	**Examiner:**	Wilson, Lee D.
Filing Date:	March 17, 2006	**Art Unit:**	3727
First Inventor:	Keitaro YONEZAWA	**Customer No.:**	23364
Attorney No.:	YONE3023/JJC/PMB	**Confirm. No.:**	2852
For:	**POSITIONING APPARATUS AND CLAMPING SYSTEM HAVING THE SAME**		

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal brief filed pursuant to the applicant's appeal to the Board of Patent Appeals and Interferences from the final rejection of claims 1-14 in the above identified application.

The filing of this appeal brief is made within two months of the filing of the Notice of Appeal and is therefore timely.

I. REAL PARTY IN INTEREST

The real party in interest is the assignee of record: KOSMEK LTD. (Hyogo, Japan).

II. RELATED APPEALS AND INTERFERENCES

A notice of appeal was filed in commonly assigned U.S. application no. 10/575,904 on December 18, 2008.

A notice of appeal was filed in commonly assigned U.S. application no. 10/565,503 on December 10, 2008.

A notice of appeal was filed in commonly assigned U.S. application no. 10/570,892 on August 1, 2008.

III. STATUS OF CLAIMS

A. Status of Claims in Proceeding

Claims 1-14 are currently pending in the above-identified application.

Claims 1-14 are rejected under 35 U.S.C. § 102(b).

B. Identification of Appealed Claims

The applicant chooses to appeal from the rejection of claims 1-14.

Claims 2-8, 13, and 14 depend from claim 1, and their patentability is based on their dependency from claim 1 and their individually recited features.

Claims 10-14 depend from claim 9, and their patentability is based on their dependency from claim 9 and their individually recited features.

A copy of all the pending claims as presented in the last entered amendment dated February 28, 2008 is included in the attached Claims Appendix.

IV. STATUS OF AMENDMENTS

There are no outstanding amendments to the claims. The last amendment to the claims was filed on February 28, 2008, and appears to have been entered. The Office action dated July 16, 2008 is responsive to the communication, including the amendment to the claims, filed on February 28, 2008.

V. SUMMARY OF CLAIMED SUBJECT MATTER

For the purposes of appeal, the rejections of claims 1-14 are appealed.

A. Independent claim 1

Pending claim 1 requires a positioning apparatus (Figs. 1-17; paragraphs [0001], [0006], [0008], [0010], [0012], [0014], [0016], [0018], [0020], [0022], [0024], [0026], [0028], [0030], [0032]).

The positioning apparatus includes a plug member (12; Figs. 2-19; paragraph [0039]) inserted into a positioning hole (5; Figs. 2, 4, 6, and 9-19; paragraph [0038]) formed in a second block (2; Figs. 2, 4-7, 9-11, 13, 14, 18; paragraph [0037]) that is projected from a first block (1; Figs. 1, 2, 4, 6, 9, 10, 14, 18, 19; paragraph [0037]).

The positioning apparatus also includes a plurality of slide portions (61; Figs. 2-7, 9-19; paragraphs [0006], [0022], [0041], [0081], [0117], [0122]) opposed to each other in a second radial direction (D2; Figs. 3, 5, 7, 8, 11-13, 15, 16, 18, 19; paragraphs [0006], [0022], [0041], [0068], [0102]) across the plug member (12) are arranged around the plug member (12) movably in a first radial direction (D1; Figs. 3, 5, 7, 8, 11-13, 15, 16, 18, 19; paragraphs [0006], [0022], [0042], [0062], [0064], [0103]) substantially orthogonal to the opposed second radial direction (D2; Figs. 3, 5, 7, 8, 11-13, 15, 16, 18, 19; paragraphs [0006], [0022], [0041], [0062], [0068], [0102]) of the slide portions (61, 61).

The positioning apparatus also includes an annular pressing member (15; Figs. 1-13, 18, 19; paragraphs [0006], [0007], [0008], [0010], [0014], [0016], [0044], [0058], [0059], [0063], [0072], [0074]-[0078], [0091], [0102], [0103], [0107], [0108]) that is allowed to diametrically expand and diametrically contract is arranged around an outer periphery of the slide portions (61, 61; Figs. 1-13, 18, 19; paragraphs [0006], [0007], [0008], [0010], [0014], [0016], [0044], [0058], [0059], [0063], [0072], [0074]-[0078], [0091], [0102], [0103], [0107], [0108]).

The positioning apparatus also includes a drive arrangement (D; Figs. 2, 9, 10, 14; paragraphs [0006]-[0009], [0022]-[0025], [0049], [0051], [0063], [0091], [0101],

[0102]) that drives the slide portions (61, 61) to diametrically expand the pressing member (15) in the second radial direction (D2) to press the pressing member (15) against a peripheral surface of the positioning hole (5; Figs. 2, 4, 6, and 9-19; paragraphs [0006]-[0009], [0022]-[0025], [0049], [0051], [0063], [0101], [0102]), wherein the slide portions (61, 61) are moved in the first radial direction (D1; Figs. 3, 5, 7, 8, 11-13, 15, 16, 18, 19; paragraphs [0006], [0022], [0042], [0062], [0064], [0103]) with respect to the plug member (12).

B. Dependent claims 2-8, 13, and 14

Pending claim 2 requires the positioning apparatus as discussed above with respect to claim 1 and further includes inclined outer surfaces (13; Figs. 2-9; paragraphs [0008], [0043], [0070]) that get closer to an axis of the plug member (12) toward a leading end are formed on an outer surfaces of the slide portions (61; Figs. 2-9; paragraphs [0008], [0043], [0070]).

The positioning apparatus also includes an inclined inner surface (17; Figs. 2-9; paragraphs [0008], [0045], [0063], [0070], [0072]) which is allowed to make a tapering engagement with the inclined outer surfaces (13) is formed on the pressing member (15; Figs. 2-9; paragraphs [0008], [0045], [0063], [0070], [0072]).

The positioning apparatus also includes a drive member (21; Figs. 2, 4, 6, 9, 10, 14; paragraphs [0008], [0010], [0024], [0049]) inserted into the plug member (12) axially movably (paragraphs [0024], [0049]), and the drive member (21) is connected to the pressing member (15; Figs. 2, 4, 6, 9, 10, 14; paragraph [0049]).

In the positioning apparatus, the drive member (21) moves the pressing member (15) toward a base end for locking to expand the pressing member (15) in the second radial direction (D2) by the tapering engagement of the inclined inner and outer surfaces to bring the pressing member (15) into close contact with the inner peripheral surface of the positioning hole (5) (paragraphs [0008], [0010], [0063], [0065], [0067]).

The drive member (21) also moves the pressing member (15) toward the leading end for releasing to cancel the expanded condition of the pressing member (15) and cancel the closely contacted condition of the pressing member (15) (paragraphs [0008], [0010], [0060], [0066]).

Pending claim 3 requires the positioning apparatus as discussed above with respect to claim 1 and further includes inclined outer surfaces (64; Figs. 10-17; paragraphs [0010], [0024], [0094], [0102], [0103], [0110], [0115]) which get closer to an axis of the plug member (12) toward a leading end and oppose each other in the second radial direction (D2) are formed on the plug member (12; Figs. 10-17; paragraphs [0010], [0024], [0094], [0102], [0103], [0110], [0115]).

The slide portions (61, 61) are allowed to make a tapering engagement with the inclined outer surfaces (64, 64) from the leading end side Figs. 10-17; paragraphs [0010], [0024], [0094], [0102], [0103], [0110], [0115]).

A drive member (21; Figs. 2, 4, 6, 9, 10, 14; paragraphs [0008], [0010], [0024], [0049]) is inserted into the plug member (12) axially movably (paragraphs [0024], [0049]), and the drive member (21) is connected to the slide portions (61) (paragraphs [0101], [0104], [0113]).

The drive member (21) moves the slide portions (61, 61) toward a base end for locking to diametrically expand the pressing member (15) in the second radial direction (D2) by the tapering engagement of the slide portions and the inclined outer surfaces to bring the pressing member (15) into close contact with the inner peripheral surface of the positioning hole (5) (Figs. 10-13; paragraphs [0099], [0101], [0102]).

The drive member (21) also moves the slide portions (61, 61) toward the leading end for releasing to cancel the expanded condition of the pressing member (15) and cancel the closely contacted condition of the pressing member (15) (Figs. 10-13; paragraph [0104]).

Pending claim 4 requires the positioning apparatus as discussed above with respect to claim 1 wherein the pressing member (15) is formed into an annular shape (Figs. 1-13, 18, 19; paragraphs [0006], [0044], [0076], [0082], [0099], [0106]).

Pending claim 5 requires the positioning apparatus as discussed above with respect to claim 4 wherein gaps (A; Figs. 3, 5, 7, 8, 11, 13; paragraphs [0014], [0045], [0070], [0077]) are formed between the pressing member (15) and the plug member (12) in the first radial direction (D1) (Figs. 3, 5, 7, 8, 11, 13; paragraphs [0014], [0045], [0070], [0077]).

Pending claim 6 requires the positioning apparatus as discussed above with respect to claim 4 wherein a slit (51; Figs. 1-7 and 9; paragraphs [0016], [0044], [0047], [0078]) is formed in the pressing member (15) to allow the pressing member (15) to deform in a diametrically expanding direction and a diametrically contracting direction (paragraphs [0016], [0078]).

Pending claim 7 requires the positioning apparatus as discussed above with respect to claim 4 wherein the pressing member (15) is formed in an annularly seamless manner (paragraphs [0018], [0082]).

Pending claim 8 requires the positioning apparatus as discussed above with respect to claim 7 wherein two contact portions (61a; Figs. 12 and 17; paragraphs [0020], [0028], [0107], [0117]) are allowed to come into contact with an inner surface of the pressing member (15) (Figs. 12 and 17; paragraphs [0020], [0028], [0107], [0117]) and an escape portion (61b; Figs. 10, 12, and 17; paragraphs [0020], [0028], [0107], [0117]) is arranged between the two contact portions (61a) are formed on an outer surface of each of the slide portions (61) circumferentially side by side (Figs. 10, 12, and 17; paragraphs [0020], [0028], [0107], [0117]), and a gap (B; Figs. 12 and 17; paragraphs [0020], [0028], [0107], [0117]) is formed between the escape portion (61b) and the pressing member (15) (paragraphs [0020], [0028], [0107], [0117]).

Pending claim 13 requires a clamping system (Figs. 18 and 19; paragraphs [0030], [0032], [0124]) wherein a positioning apparatus (101, 102, 111, 112, 113)

according to claim 1 is provided to releasably clamp the second block to the first block (paragraphs [0125], [0126]).

Pending claim 14 requires a clamping system (Figs. 18 and 19; paragraphs [0030], [0032], [0124]) wherein a plurality of positioning apparatuses (101, 102, 111, 112, 113) are provided and at least one of them is the positioning apparatus as set forth in claim 1 (paragraphs [0126]-[0131]).

C. Independent claim 9

Pending claim 9 requires a positioning apparatus (Figs. 1-17; paragraphs [0001], [0006], [0008], [0010], [0012], [0014], [0016], [0018], [0020], [0022], [0024], [0026], [0028], [0030], [0032]).

The positioning apparatus includes a plug member (12; Figs. 2-19; paragraph [0039]) inserted into a positioning hole (5; Figs. 2, 4, 6, and 9-19; paragraph [0038]) formed in a second block (2; Figs. 2, 4-7, 9-11, 13, 14, 18; paragraph [0037]) that is projected from a first block (1; Figs. 1, 2, 4, 6, 9, 10, 14, 18, 19; paragraph [0037]).

The positioning apparatus also includes a plurality of slide portions (61; Figs. 2-7, 9-19; paragraphs [0006], [0022], [0041], [0081], [0117], [0122]) opposed to each other in a second radial direction (D2; Figs. 3, 5, 7, 8, 11-13, 15, 16, 18, 19; paragraphs [0006], [0022], [0041], [0068], [0102]) across the plug member (12) are arranged around the plug member (12) movably in a first radial direction (D1; Figs. 3, 5, 7, 8, 11-13, 15, 16, 18, 19; paragraphs [0006], [0022], [0042], [0062], [0064], [0103]) substantially orthogonal to the opposed second radial direction (D2; Figs. 3, 5, 7, 8, 11-13, 15, 16, 18, 19; paragraphs [0006], [0022], [0041], [0062], [0068], [0102]) of the slide portions (61, 61) and are allowed diametrically expand and diametrically contract in the second radial direction (D2; paragraphs [0010], [0022], [0024], [0027], [0029], [0102], [0114]-[0116]).

The positioning apparatus also includes a drive arrangement (D; Figs. 2, 9, 10, 14; paragraphs [0006]-[0009], [0022]-[0025], [0049], [0051], [0063], [0091], [0101], [0102]) that drives the slide portions (61, 61) to diametrically expand in the second

radial direction (D2) to press against a peripheral surface of the positioning hole (5; Figs. 2, 4, 6, and 9-19; paragraphs [0006]-[0009], [0022]-[0025], [0049], [0051], [0063], [0101], [0102]), wherein the slide portions (61, 61) are moved in the first radial direction (D1; Figs. 3, 5, 7, 8, 11-13, 15, 16, 18, 19; paragraphs [0006], [0022], [0042], [0062], [0064], [0103]) with respect to the plug member (12).

D. Dependent claims 10-14

Pending claim 10 requires the positioning apparatus as discussed above with respect to claim 9 and further includes inclined outer surfaces (64; Figs. 10-17; paragraphs [0010], [0024], [0094], [0102], [0103], [0110], [0115]) which get closer to an axis of the plug member (12) toward a leading end and oppose each other in the second radial direction (D2) are formed on the plug member (12; Figs. 10-17; paragraphs [0010], [0024], [0094], [0102], [0103], [0110], [0115]).

The positioning apparatus also includes a cylindrical connecting member (81; Figs. 14-17; paragraphs [0024], [0111], [0113]) arranged around an outer periphery of the plug member (12).

The slide portions (61) of the positioning apparatus are supported on the connecting member (81) movably in the second radial direction (D2), and are allowed to make a tapering engagement with the inclined outer surfaces (64) from the leading end side (Figs. 14-17; paragraphs [0024], [0111]-[0116]).

The positioning apparatus also includes a drive member (21; Figs. 2, 4, 6, 9, 10, 14; paragraphs [0008], [0010], [0024], [0049]) inserted into the plug member (12) axially movably (paragraphs [0024], [0049]), and the drive member (21) is connected to the connecting member (81; Fig. 14; paragraphs [0024], [0113]), and the drive member (21) moves the slide portions (61) toward a base end for locking to expand the slide portions (61) in the second radial direction (D2) by the tapering engagement of the slide portions and the inclined outer surfaces to bring the slide portions (61) into close contact with an inner peripheral surface of the positioning hole (5), and the drive member (21) also moves the slide portions (61) toward the leading end for releasing to cancel the expanded condition of the slide portions (61) and cancel the

closely contacted condition of the slide portions (61) (paragraphs [0024], [0113]-[0116]).

Pending claim 11 requires the positioning apparatus as discussed above with respect to claim 10 including an urging member (84; Figs. 14-17; paragraphs [0026], [0112]) is provided, which applies resilient force against the slide portions (61) in a diametrically contracting direction (paragraphs [0026], [0112]).

Pending claim 12 requires the positioning apparatus as discussed above with respect to claim 9 including two contact portions (61a) and an escape portion (61b) arranged between the two contact portions (61a) are formed on an outer surface of each of the slide portions (61) circumferentially side by side, and when the contact portions (61a) come into contact with an inner peripheral surface of the positioning hole (5), a gap (B) is formed between the escape portion (61b) and the inner peripheral surface of the positioning hole (5) (Figs. 14-17; paragraphs [0028], [0029], [0117], [0118]).

Claim 13 requires a clamping system (Figs. 18 and 19; paragraphs [0030], [0032], [0124]) wherein a positioning apparatus (101, 102, 111, 112, 113) according to claim 9 is provided to releasably clamp the second block to the first block (paragraphs [0125], [0126]).

Claim 14 requires a clamping system (Figs. 18 and 19; paragraphs [0030], [0032], [0124]) wherein a plurality of positioning apparatuses (101, 102, 111, 112, 113) are provided and at least one of them is the positioning apparatus as set forth in claim 9 (paragraphs [0126]-[0131]).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-14 are anticipated under 35 U.S.C. § 102(b) by U.S. patent no. 6,095,509 (*Yonezawa*).

VII. ARGUMENT

As discussed in detail below, the basis for the final rejection of claims 1-14 does not satisfy the requirements of anticipation of the subject matter recited in the rejected claims. Therefore, reversal of the rejection of claims 1-14 is respectfully requested.

A. Claim Rejections

Claims 1-14 in this application are rejected as being anticipated under 35 U.S.C. § 102(b) by U.S. patent no. 6,095,509 (*Yonezawa*).

B. Pertinent Law

In rejecting claims under 35 U.S.C. § 102(b), anticipation can only be established when a single prior art reference discloses, either expressly or under the principles of inherency, each and every element of the claimed invention. *See for example, In re Paulsen*, 30 F.3d 1475, 1480-1481, 31 USPQ2d 1671, 1675 (Fed. Cir. 1994): and *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990). The same invention must be shown in as complete detail as is described in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). It is recognized that the elements must be arranged as required by the claim, however, there is no *ipsissimis verbis* test (identity of terminology is not required). *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

The dispositive question regarding anticipation is whether one skilled in the art would reasonably understand or infer from the prior art reference's teachings that every claim limitation was described in that single reference. *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368, 66 USPQ2d 1801, 1809 (Fed. Cir. 2003). To establish anticipation, it must be shown that a single prior art reference describes each and every limitation of a claimed invention. *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1379, 231 USPQ 81, 90 (Fed. Cir. 1986; cert. denied, 480 U.S. 947 (1987). The description in the reference may be either

express or inherent. *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

C. The *Yonezawa* patent does not anticipate the subject matter of claim 1

The discussion below is focused on the apparatus of independent claim 1. The dependent claims 2-8, 13, and 14 stand or fall with independent claim 1.

Reversal of the rejection of claim 1 is respectfully requested on the basis that the *Yonezawa* patent fails to disclose or suggest every feature of the positioning apparatus according to claim 1.

As will be discussed below, the *Yonezawa* patent fails to disclose at least a plurality of slide portions that are opposed to each other in a second radial direction across the plug member and that are arranged around the plug member in a manner so as to be movable in a first radial direction that is substantially orthogonal to the opposed second radial direction, all as required by pending claim 1.

Accordingly, claim 1 is patentable in view of the disclosure of the *Yonezawa* patent.

By way of review, pending claim 1 requires a positioning apparatus that includes a plug member projected from a first block and inserted into a positioning hole formed in a second block. A plurality of slide portions that are opposed to each other in a second radial direction across the plug member are arranged around the plug member in a manner so as to be movable in a first radial direction that is substantially orthogonal to the opposed second radial direction. A diametrically expandable and contractible annular pressing member is arranged around an outer periphery of the slide portions. A drive arrangement drives the slide portions to diametrically expand the pressing member in the second radial direction and to press the pressing member against a peripheral surface of the positioning hole, wherein the slide portions are moved in the first radial direction with respect to the plug member.

As discussed in detail during the interview of September 17, 2008, an exemplary illustration of an embodiment according to pending claim 1 is shown in

Figs. 2 and 3 of the application as originally filed. In Figs. 2 and 3, the plurality of slide portions is identified as elements 61, which are opposed to each other in a second radial direction D2 across a plug member 12. The slide portions 61 have inner slide surfaces 63 that cooperate and engage outer slide surfaces 64 on the plug member 12. With this configuration, as shown in Fig. 3, the slide portions 61 can move in the first radial direction D1, orthogonal to the second radial direction D2, in order to accommodate misalignment between the axes of a positioning hole 5 and the plug member 12.

Further, with respect to claim 1, the slide portions cooperate with a drive mechanism to cause the pressing member (sleeve 15) to diametrically expand in the second radial direction D2 to press the pressing member against a peripheral surface of the positioning hole.

The *Yonezawa* patent fails to disclose at least a plurality of slide portions that are opposed to each other in a second radial direction across the plug member and that are arranged around the plug member in a manner so as to be movable in a first radial direction that is substantially orthogonal to the opposed second radial direction, all as required by pending claim 1.

The *Yonezawa* patent discloses a clamping apparatus that has a pull rod 12 having a tapered outer peripheral surface 12a (abstract; col. 1, lines 39-41). When the pull rod 12 is driven towards a base end, the tapered outer peripheral surface 12a causes an engaging member 14 to move to a radially outward engaging position X (col. 1, lines 39-42). Similarly, when the pull rod 12 is driven toward a leading end, the engaging member 14 is moved to a radially inward disengaging position Y (col. 1, lines 46-49). A plurality of engaging members 14 can be provided (col. 2, lines 2-6).

The Office action dated December 23, 2008, on page 2, identifies the tapered outer peripheral surface 12a as corresponding to the recited plurality of slide portions. However, the tapered outer peripheral surface 12a is a single surface, and cannot be considered to be a plurality of slide portions, as recited in pending claim 1.

Furthermore, the tapered outer peripheral surface 12a does not move both in an opposed second radial direction and in a first radial direction substantially orthogonal to the opposed second radial direction, as is required by pending claim 1. Instead, the tapered outer peripheral surface 12a merely moves vertically up and down. Thus, the tapered outer peripheral surface 12a cannot be considered to be a plurality of slide portions, as recited in pending claim 1.

Turning to the collet 13 provided on the tapered outer peripheral surface 12a of the pull rod 12, and as shown in Figs. 1 and 2, the collet is an integrally formed member, and thus cannot be considered to be a plurality of slide portions, as recited in claim 1.

Further, as shown in Figs. 1 or 2, at a time of clamping, if the axis of a hole 2 of a work piece 1 and the axis of the pull rod 12 are misaligned with each other, the tapered outer peripheral surface 12a of the pull rod 12 causes an engaging member 14 provided on the collet 13 to move *outward* in a radial direction so as to contact the inner peripheral surface of the hole 2 of the work piece 1. The result of this arrangement is that a reaction force causes the collet 13 (and the engaging member 14) and the pull rod 12 to move *inward* in the radial direction. This then cancels out the misalignment between the hole 2 and the pull rod 12.

In other words, at the time of the clamping operation, the direction in which the collet 13 (and the engaging member 14) is moved is the radially inward and outward direction only, which is in contrast to the recitation in pending claim 1 of a plurality of slide portions that move both in an opposed second radial direction and in a first radial direction substantially orthogonal to the opposed second radial direction. Thus, the collet 13 (and the engaging member 14) cannot be considered to be a plurality of slide portions, as recited in claim 1.

Turning to the engaging member 14 as shown in Figs. 12 or 13, at a time of clamping, the tapered outer peripheral surface 12a of the pull rod 12 causes the engaging member 14 to move *outward* in the radial direction so as to contact the inner peripheral surface of the hole 2 of the work piece 1, and a reaction force acts onto the

engaging member 14 from the inner peripheral surface of the hole 2 (col. 9, lines 53-56). The reaction forces then cause the engaging member 14, the pull rod 12, and the annular member 13 to move *inward* in the radial direction.

In other words, at the time of the clamping operation, the direction in which the engaging member 14 is moved is the radially inward and outward direction only, which is in contrast to the recitation in claim 1 of a plurality of slide portions that move both in an opposed second radial direction and in a first radial direction substantially orthogonal to the opposed second radial direction. Thus, the engaging member 14 cannot be considered to be a plurality of slide portions, as recited in claim 1.

Thus, the *Yonezawa* patent fails to disclose at least a plurality of slide portions that are opposed to each other in a second radial direction across the plug member and that are arranged around the plug member in a manner so as to be movable in a first radial direction that is substantially orthogonal to the opposed second radial direction, all as required by pending claim 1.

For at least this reason, the *Yonezawa* patent fails to anticipate the subject matter of claim 1, and reversal of this rejection is respectfully requested.

The remaining pending claims 2-8, 13, and 14, which depend from claim 1, contain all of the elements of claim 1, as well as their respective recited features. Accordingly, since the *Yonezawa* patent fails to anticipate the subject matter of claim 1, the *Yonezawa* patent fails to anticipate the subject matter of claims 2-8, 13, and 14, and reversal of this rejection is respectfully requested.

D. The *Yonezawa* patent does not anticipate the subject matter of claim 9

The discussion below is focused on the apparatus of independent claim 9. The dependent claims 10-14 stand or fall with independent claim 9.

Reversal of the rejection of claim 9 is respectfully requested on the basis that the *Yonezawa* patent fails to disclose or suggest every feature of the positioning apparatus according to claim 9.

As will be discussed below, the *Yonezawa* patent fails to disclose at least a plurality of slide portions that are opposed to each other in a second radial direction across the plug member and that are arranged around the plug member in a manner so as to be movable in a first radial direction that is substantially orthogonal to the opposed second radial direction, all as required by pending claim 9.

Accordingly, claim 9 is patentable in view of the disclosure of the *Yonezawa* patent.

By way of review, pending claim 9 requires a positioning apparatus having a plug member projected from a first block and inserted into a positioning hole formed in a second block. A plurality of slide portions that are opposed to each other in a second radial direction across the plug member are arranged around the plug member in a manner so as to be movable in a first radial direction that is substantially orthogonal to the opposed second radial direction. A drive arrangement drives the slide portions to diametrically expand in the second radial direction and to press against a peripheral surface of the positioning hole, wherein the slide portions are moved in the first radial direction with respect to the plug member.

The *Yonezawa* patent fails to disclose at least a plurality of slide portions that are opposed to each other in a second radial direction across the plug member and that are arranged around the plug member in a manner so as to be movable in a first radial direction that is substantially orthogonal to the opposed second radial direction, all as required by pending claim 9.

The *Yonezawa* patent discloses a clamping apparatus that has a pull rod 12 having a tapered outer peripheral surface 12a (abstract; col. 1, lines 39-41). When the pull rod 12 is driven towards a base end, the tapered outer peripheral surface 12a causes an engaging member 14 to move to a radially outward engaging position X (col. 1, lines 39-42). Similarly, when the pull rod 12 is driven toward a leading end, the engaging member 14 is moved to a radially inward disengaging position Y (col. 1, lines 46-49). A plurality of engaging members 14 can be provided (col. 2, lines 2-6).

The Office action dated December 23, 2008, on page 2, identifies the tapered outer peripheral surface 12a as corresponding to the recited plurality of slide portions. However, the tapered outer peripheral surface 12a is a single surface, and cannot be considered to be a plurality of slide portions, as recited in pending claim 9.

Furthermore, the tapered outer peripheral surface 12a does not move both in an opposed second radial direction and in a first radial direction substantially orthogonal to the opposed second radial direction, as is required by pending claim 9. Instead, the tapered outer peripheral surface 12a merely moves vertically up and down. Thus, the tapered outer peripheral surface 12a cannot be considered to be a plurality of slide portions, as recited in pending claim 9.

Turning to the collet 13 provided on the tapered outer peripheral surface 12a of the pull rod 12, and as shown in Figs. 1 and 2, the collet is an integrally formed member, and thus cannot be considered to be a plurality of slide portions, as recited in claim 9.

Further, as shown in Figs. 1 or 2, at a time of clamping, if the axis of a hole 2 of a work piece 1 and the axis of the pull rod 12 are misaligned with each other, the tapered outer peripheral surface 12a of the pull rod 12 causes an engaging member 14 provided on the collet 13 to move *outward* in a radial direction so as to contact the inner peripheral surface of the hole 2 of the work piece 1. The result of this arrangement is that a reaction force causes the collet 13 (and the engaging member 14) and the pull rod 12 to move *inward* in the radial direction. This then cancels out the misalignment between the hole 2 and the pull rod 12.

In other words, at the time of the clamping operation, the direction in which the collet 13 (and the engaging member 14) is moved is the radially inward and outward direction only, which is in contrast to the recitation in pending claim 9 of a plurality of slide portions that move both in an opposed second radial direction and in a first radial direction substantially orthogonal to the opposed second radial direction. Thus, the collet 13 (and the engaging member 14) cannot be considered to be a plurality of slide portions, as recited in claim 9.

Turning to the engaging member 14 as shown in Figs. 12 or 13, at a time of clamping, the tapered outer peripheral surface 12a of the pull rod 12 causes the engaging member 14 to move *outward* in the radial direction so as to contact the inner peripheral surface of the hole 2 of the work piece 1, and a reaction force acts onto the engaging member 14 from the inner peripheral surface of the hole 2 (col. 9, lines 53-56). The reaction forces then cause the engaging member 14, the pull rod 12, and the annular member 13 to move *inward* in the radial direction.

In other words, at the time of the clamping operation, the direction in which the engaging member 14 is moved is the radially inward and outward direction only, which is in contrast to the recitation in claim 9 of a plurality of slide portions that move both in an opposed second radial direction and in a first radial direction substantially orthogonal to the opposed second radial direction. Thus, the engaging member 14 cannot be considered to be a plurality of slide portions, as recited in claim 9.

Thus, the *Yonezawa* patent fails to disclose at least a plurality of slide portions that are opposed to each other in a second radial direction across the plug member and that are arranged around the plug member in a manner so as to be movable in a first radial direction that is substantially orthogonal to the opposed second radial direction, all as required by pending claim 9.

For at least this reason, the *Yonezawa* patent fails to anticipate the subject matter of claim 9, and reversal of this rejection is respectfully requested.

The remaining pending claims 10-14, which depend from claim 9, contain all of the elements of claim 9, as well as their respective recited features. Accordingly, since the *Yonezawa* patent fails to anticipate the subject matter of claim 9, the *Yonezawa* patent fails to anticipate the subject matter of claims 10-14, and reversal of this rejection is respectfully requested.

VIII. Conclusion

For the reasons set forth above, claims 1-14 define subject matter that is not anticipated within the meaning of 35 U.S.C. § 102(b) by the *Yonezawa* patent.

Reversal of the rejections of claims 1-14 is respectfully requested.

The Fee required by 37 C.F.R. § 1.17(c) is submitted herewith. The Office is authorized to charge any additional fees associated with this communication to Deposit Account No. 02-0200.

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IX. CLAIMS APPENDIX

Claim 1. A positioning apparatus, wherein

a plug member inserted into a positioning hole formed in a second block is projected from a first block,

a plurality of slide portions opposed to each other in a second radial direction across the plug member are arranged around the plug member movably in a first radial direction substantially orthogonal to the opposed second radial direction of the slide portions,

an annular pressing member which is allowed to diametrically expand and diametrically contract is arranged around an outer periphery of the slide portions, and

a drive arrangement drives the slide portions to diametrically expand the pressing member in the second radial direction to press the pressing member against a peripheral surface of the positioning hole, wherein the slide portions are moved in the first radial direction with respect to the plug member.

Claim 2. The positioning apparatus as set forth in claim 1, wherein

inclined outer surfaces which get closer to an axis of the plug member toward a leading end are formed on an outer surfaces of the slide portions,

an inclined inner surface which is allowed to make a tapering engagement with the inclined outer surfaces is formed on the pressing member,

a drive member is inserted into the plug member axially movably, and the drive member is connected to the pressing member,

the drive member moves the pressing member toward a base end for locking to expand the pressing member in the second radial direction by the tapering engagement of the inclined inner and outer surfaces to bring the pressing member into close contact with the inner peripheral surface of the positioning hole, and

the drive member also moves the pressing member toward the leading end for releasing to cancel the expanded condition of the pressing member and cancel the closely contacted condition of the pressing member.

Claim 3. The positioning apparatus as set forth in claim 1, wherein

inclined outer surfaces which get closer to an axis of the plug member toward a leading end and oppose each other in the second radial direction are formed on the plug member,

the slide portions are allowed to make a tapering engagement with the inclined outer surfaces from the leading end side,

a drive member is inserted into the plug member axially movably, and the drive member is connected to the slide portions,

the drive member moves the slide portions toward a base end for locking to diametrically expand the pressing member in the second radial direction by the tapering engagement of the slide portions and the inclined outer surfaces to bring the pressing member into close contact with the inner peripheral surface of the positioning hole, and

the drive member also moves the slide portions toward the leading end for releasing to cancel the expanded condition of the pressing member and cancel the closely contacted condition of the pressing member.

Claim 4. The positioning apparatus as set forth in claim 1, wherein

the pressing member is formed into an annular shape.

Claim 5. The positioning apparatus as set forth in claim 4, wherein

gaps are formed between the pressing member and the plug member in the first radial direction.

Claim 6. The positioning apparatus as set forth in claim 4, wherein

a slit is formed in the pressing member to allow the pressing member to deform in a diametrically expanding direction and a diametrically contracting direction.

Claim 7. The positioning apparatus as set forth in claim 4, wherein

the pressing member is formed in an annularly seamless manner.

Claim 8. The positioning apparatus as set forth in claim 7, wherein

two contact portions allowed to come into contact with an inner surface of the pressing member and an escape portion arranged between the two contact portions are formed on an outer surface of each of the slide portions circumferentially side by side, and

a gap is formed between the escape portion and the pressing member.

Claim 9. A positioning apparatus, wherein

a plug member inserted into a positioning hole formed in a second block is projected from a first block,

a plurality of slide portions opposed to each other in a second radial direction across the plug member are arranged around the plug member movably in a first radial direction substantially orthogonal to the opposed second radial direction of the slide portions and are allowed to diametrically expand and diametrically contract in the second radial direction, and

a drive arrangement drives the slide portions to diametrically expand in the second radial direction and to press against a peripheral surface of the positioning hole, wherein the slide portions are moved in the first radial direction with respect to the plug member.

Claim 10. The positioning apparatus as set forth in claim 9, wherein

inclined outer surfaces which get closer to an axis of the plug member toward a leading end and oppose each other in the second radial direction are formed on the plug member,

a cylindrical connecting member is arranged around an outer periphery of the plug member,

the slide portions are supported on the connecting member movably in the second radial direction, and are allowed to make a tapering engagement with the inclined outer surfaces from the leading end side,

a drive member is inserted into the plug member axially movably, and the drive member is connected to the connecting member,

the drive member moves the slide portions toward a base end for locking to expand the slide portions in the second radial direction by the tapering engagement of the slide portions and the inclined outer surfaces to bring the slide portions into close contact with an inner peripheral surface of the positioning hole, and

the drive member also moves the slide portions toward the leading end for releasing to cancel the expanded condition of the slide portions and cancel the closely contacted condition of the slide portions.

Claim 11. The positioning apparatus as set forth in claim 10, wherein

an urging member is provided, which applies resilient force against the slide portions in a diametrically contracting direction.

Claim 12. The positioning apparatus as set forth in claim 9, wherein

two contact portions and an escape portion arranged between the two contact portions are formed on an outer surface of each of the slide portions circumferentially side by side, and

when the contact portions come into contact with an inner peripheral surface of the positioning hole, a gap is formed between the escape portion and the inner peripheral surface of the positioning hole.

Claim 13. A clamping system, wherein

the positioning apparatus as set forth in claim 1 or claim 9 is provided to releasably clamp the second block to the first block.

Claim 14. A clamping system, wherein

a plurality of positioning apparatuses are provided and at least one of them is the positioning apparatus as set forth in claim 1 or claim 9.

X. EVIDENCE APPENDIX

There are no copies of evidence entered and relied upon in this appeal of the pending application.

XI. RELATED PROCEEDINGS APPENDIX

There are no related proceedings or decisions rendered by a court or the Board of Appeals in any proceeding identified in the related appeals and interferences section in the pending application.